

One format, four costumes: cinema, streaming, music, binaural. What ships where, at what bitrate and loudness.

The four Atmos costumes

CINEMA

Is: Up to 128 tracks (9.1 bed + up to 118 objects) rendered live.
Carriage: DCP, up to 64 independent speaker feeds. Lossless.
Know: The only routinely-lossless Atmos.

STREAMING / HOME

Is: Spatial-coded to 12-16 elements, then a normal codec.
Carriage: E-AC-3 JOC (~384-768 kbps) or AC-4 (~192-320 kbps, 7.1.4).
Know: You stream ~16 elements, NOT 128 channels.

MUSIC

Is: Authored object master; Apple Music / Tidal / Amazon.
Carriage: DD+ JOC (Apple) or AC-4 IMS (Amazon/Tidal, reported).
Know: Loudness <= -18 LUFS integrated, -1 dBTP, per track.

BINAURAL (AirPods)

Is: Atmos master rendered to 2-ch headphone audio, on-device.
Carriage: Downmix to 7.1.4 -> virtualise; head-track + personalized HRTF.
Know: It is a RENDER of the master, not the master.

Reading the speaker notation

floor . LFE . height -> 5.1.2, 7.1.4 (home reference), 9.1.6 (max named home layout).

First number = ear-level speakers. Second = the LFE/subwoofer (.1 = bass-only).

Third number = OVERHEAD (ceiling) speakers - the immersive height layer.

Home tops out at 9.1.6 (most AVRs cap at 7.1.4); cinema scales to 64 feeds.

Five rules to remember

- Atmos master = ADM BWF .wav, 24-bit / 48 kHz, ITU-R BS.2076. All 4 costumes render from it.
- Loudness: MUSIC -18 LUFS integrated; VIDEO ~-27 LKFS dialogue-gated. Different methods - never swap.
- No fake Atmos: a stereo mix + reverb placed in the field is NOT a valid Atmos master.
- TrueHD (Blu-ray, MLP) is the only consumer lossless Atmos. Streaming Atmos is lossy.
- Spec anchors: ETSI TS 102 366 (E-AC-3/JOC), ETSI TS 103 190-2 (AC-4), ITU-R BS.1770-4 (loudness).